

# 抗蝮蛇毒血清的交叉中和作用

蒋克贤 郭惠英 陈正伟 龚全元 马颖杰

(卫生部上海生物制品研究所)

用免疫扩散和中和试验法研究了浙江蝮蛇毒马抗血清对我国其他地区的蝮蛇毒和日本蝮蛇毒以及其他蝮亚科蛇毒之间的关系。

蛇毒对抗蛇毒血清所得的免疫扩散沉淀线见图A, B。

交叉中和试验结果表明, 一毫升抗蛇毒血清能分别中和蝮蛇毒素4~5毫克, 五步蛇毒素1毫克; 烙铁头蛇毒素和竹叶青蛇毒素1.5毫克。(表1、2)。

表1 精制抗蝮蛇毒血清对同种不同地区蝮蛇毒的中和试验

蛇毒名称及毒力(腹腔)	组号	血 清 (ml)	蛇 毒 (2mg/ml)	缓冲盐水 (ml)	动物数 (只)	注射剂量 (ml)	死亡数/试验数	结 论
蝮蛇毒浙江奉宁地区 $LD_{50}$ : 15.64 (毫克)	1	0.8	2.0	1.2	5	0.5	0/5	
	2	0.8	2.2	1.0	5	0.5	1/5	
	3	0.8	2.4	0.8	5	0.5	4/5	5 mg/ml
	4	0.8	2.6	0.6	5	0.5	5/5	
	5	0.8	2.8	0.4	5	0.5	5/5	
蝮蛇毒江苏昆山地区 $LD_{50}$ : 8.11 (毫克)	1	0.8	1.6	1.6	5	0.5	0/5	
	2	0.8	1.8	1.4	5	0.5	0/5	
	3	0.8	2.0	1.2	5	0.5	0/5	5 mg/ml
	4	0.8	2.2	1.0	5	0.5	1/5	
	5	0.8	2.4	0.8	5	0.5	3/5	
蝮蛇毒(白腹蝮)吉林通化 $LD_{50}$ : 14 (毫克)	1	0.8	1.6	1.6	6	0.5	0/6	
	2	0.8	1.8	1.4	6	0.5	0/6	
	3	0.8	2.0	1.2	6	0.5	1/6	4.5 mg/ml
	4	0.8	2.2	1.0	6	0.5	2/6	
	5	0.8	2.4	0.8	6	0.5	5/6	
蝮蛇毒(蛇岛蝮蛇) $LD_{50}$ : 14.77 (毫克)	1	0.8	1.6	1.6	6	0.5	0/6	
	2	0.8	1.8	1.4	6	0.5	2/6	
	3	0.8	2.0	1.2	5	0.5	1/5	4.0 mg/ml
	4	0.8	2.2	1.0	5	0.5	1/5	
	5	0.8	2.4	0.8	5	0.5	2/5	

表2 精制抗蝮蛇毒血清对同科不同蛇种的中和试验

蛇毒名称及毒力(毫克)	组号	血清(ml)	蛇毒(2mg/ml)	缓冲盐水(ml)	动物数(只)	注射剂量(ml)	死亡数/试验数	结 论
烙铁头蛇蛇毒 $LD_{50}$ : 54.83(毫克)	1	1.6	0.8	1.6	5	0.5	0/5	
	2	1.6	1.2	1.2	5	0.5	0/5	
	3	1.6	1.6	0.8	5	0.5	4/5	1.6mg/ml
	4	1.6	2.4	/	5	0.5	5/5	
	对照	/	0.4	3.6	5	0.5	5/5	
竹叶青蛇毒 $LD_{50}$ : 23.25(毫克)	1	1.6	0.8	1.6	5	0.5	0/5	
	2	1.6	1.2	1.2	5	0.5	0/5	
	3	1.6	1.6	0.8	5	0.5	1/5	1.5mg/ml
	4	1.6	2.4	/	5	0.5	5/5	
	对照	/	0.2	3.8	5	0.5	5/5	
五步蛇蛇毒 $LD_{50}$ :	1	2.0	0.5	2.5	5	0.5	0/5	
	2	2.0	1.0	2.0	5	0.5	0/5	
	3	2.0	1.5	1.5	5	0.5	4/5	1mg/ml
	4	2.0	2.0	1.0	5	0.5	5/5	
	对照	/						
蝮蛇蛇毒 $LD_{50}$ : 8.72(毫克)	1	0.8	0.3mg/ml 1.0ml	0.2	4	0.4	4/4	
	2	0.8	x 0.8 x	0.4	4	0.4	4/4	
	3	0.8	x 0.6 x	0.6	4	0.4	4/4	
	4	0.8	x 0.4 x	0.8	4	0.4	4/4	
	对照	/	x 0.3 x	1.7	4	0.4	4/4	
眼镜蛇蛇毒 $LD_{50}$ : 8.6(毫克)	1	0.8	20LD <sub>50</sub> /ml 1.0ml	0.2	4	0.4	4/4	
	2	0.8	x 0.8 x	0.4	4	0.4	4/4	
	3	0.8	x 0.6 x	0.6	4	0.4	4/4	
	4	0.8	/ / /	/	/	/	/	
	对照	/	x 0.5 x	1.5	4	0.4	4/4	

上述结果指出, 浙江蝮蛇毒比其他地区蝮蛇毒具有较广的抗原谱, 因此该蛇毒能作为制备多价抗蝮科蛇毒血清的良好的抗原。

## THE CROSS-NEUTRALIZING ACTION OF ANTIVENIN AGAINST *AGKISTRODON HALYS* PALLAS

Jiang Ke-xian Guo Hui-ying Chen Zheng-wei

Gong Quan-yuan Ma Ying-jie

(Shanghai Vaccine and Serum Institute, National Ministry of Public  
Health, People's Republic of China)

### Abstract

The immunological relationships between horse antivenom serum to the venom of *Agkistrodon halys* from Zhejiang and venom of *Agkistrodon halys* from the other parts of China, venom of *A. h. blomhoffi* from Japan, as well as venoms of other species of *Crotalidae* were studies by means of immunodiffusion methods and neutralizing tests.

A number of precipitating lines were obtained from immunodiffusion method of these selected venoms against the specific antivenin. The results of cross-neutralizing test showed that one ml. of the antivenin could neutralize 4-5 mg of *Agkistrodon halys* venom, 1.0 mg of *A. acutus* venom, 1.5 mg of *trimersurus mucrosquamatus* venom, and *T. stejnegeri* venom respectively.

Above results indicate that the venom of *Agkistrodon halys* from Zhejiang contains wider antigen spectrum than those from the other parts of our country. Thereby the venom may be used as a good polyvalent *Crotalidae* antivenin.